

runs along a prescribed shape or contour, especially a straight line.
Preferably, six nozzle groups of this type are provided.

According to a particularly advantageous embodiment of the
present invention, the straight lines on which the nozzle groups are
constructed project tangentially relative to the first nozzle, that is, the
straight lines do not run through the nozzles, rather touch the nozzles'
periphery. Through production of a tangential flow of the liquid,
specifically, the radially, outwardly flowing fluid layer, which is produced
through the first nozzle, the spiral shaped, outwardly directed flow, as
described above, can be produced. This effect can also be achieved,
for example, through a spiral shaped contour.

In this connection, the second nozzles are directed at the
straight line at essentially right angles in order to direct the liquid in a
substantially peripheral direction. Preferably, at least one additional
nozzle is provided, which is directed back at the first nozzle. In order to
produce a good tangential component, the two nozzles are directed at
the substrate at an angle of less than 90° , and preferably, at an angle
of 45° . Preferably, the second nozzles are point nozzles.

According to a particularly advantageous embodiment of the
present invention, the first nozzle and the second nozzles are able to
be loaded with different pressures, whereby via the second nozzles, an
optimal production of the outward flowing fluid layer can be achieved.
Via the conducted fluid volume, the incline or pitch of the spiral shaped,

outwardly directed flow, for example, can be changed and thereby, the treatment process can be optimally adjusted.

According to another particularly advantageous embodiment of the present invention, the first nozzle and the second nozzles are able to be loaded with different liquids. The consumption of the processing fluid can be substantially reduced, in that only one processing fluid is conducted via the centered, first nozzle and via the second nozzles, a fluid is conducted which can be adjusted separately from the fluid from the first nozzle.

In a preferred form of the present invention, a rinsing fluid is conducted through the first nozzle for a rinsing process.

For construction of a combination processing/drying device, preferably a vacuum can be applied to the first nozzle. When a processing liquid is first applied onto the substrate via the first nozzle, this processing liquid can adhere droplet-wise on the line leading to the nozzle, or even the nozzle itself. With a subsequent drying, these droplets can leak from the line or the nozzle, which would significantly adversely affect the drying process. A leakage of this type is prevented through a vacuum applied to the first nozzle.

According to a further preferred embodiment of the invention, a gas is conducted via the second nozzles, which allows the flow of the treatment fluid to be optimally adjusted, without changing the properties

of the treatment fluid. A further gas fed via the second nozzles can be used for drying the substrate after a previous treatment.

In a further embodiment, the first and second nozzles are arranged in a common base. In order to ensure a good separation of the first nozzle and second nozzles, an insert on the first nozzle is insertable into the base.

For an especially cost-effective and simple embodiment of the present invention, the second nozzles are formed in a nozzle plate of the base and are controlled via a preferably ring-shaped liquid chamber beneath the nozzle plate.

Advantageously, the base has a surface that surrounds the nozzle plate and is lower than the nozzle plate, and which has bores for receiving spacers therein. The spacers serve for adjustment of the spacing of a substrate carrier disposed over the device. Advantageously, the spacers are adjustable.

Accordingly to another preferred embodiment of the present invention, an overflow collar is provided on the base, which makes possible a fluid flow along an outer side of a substrate held in the substrate carrier, especially for drying. In order to provide this fluid flow, at least one inwardly directed nozzle is provided in or on the overflow collar. With one particularly advantageous form of the invention, the nozzle or nozzles in the overflow collar project upwardly, in order to provide the flow through the first and second nozzles.